

## **Advanced Chromatography, Cuttings Analysis and Well Logging Integration: An Optimized Petrophysical Approach**

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### **ABSTRACT**

The characterization and petrophysical evaluation from conventional electric logs has become a real challenge when interpreting unconventional reservoirs or reservoirs characterized by the presence of fresh water and/or heavy oil fluids. The use of surface logging tools such as quantitative gas detectors in combination with the geochemical analysis of rock cuttings, utilizing XRD, XRF and Pyrolysis (TOC) instruments, has greatly aided the identification and characterization of hydrocarbon zones. In addition, it allows identification of the water content, which is obtained from Pixler ratios and aromatic hydrocarbon content.

Another important consideration in evaluating the reservoir is a need to consider the effects of salinity, clay content, and laminations. The use of the advanced gas/geochemical analysis and its interpretation has solved models for hydrocarbon saturation in areas where high uncertainty exists or where, for economic or other reasons, it was not possible to acquire full sets of electric logs. This combination of surface logging techniques and interpretation method provides a reliable characterization solution.